

CLAIMS

1. A method for cutting an associated ply stock (S) along a cut line using a cutting apparatus (10) comprising a knife assembly (14), means for moving said knife assembly (14) normally toward and away from said ply stock (S), and means for traversing said knife assembly (14) between a first lateral edge (18) and a second lateral edge (22) of said ply stock (S), said knife assembly (14) including a blade (50) having a cutting portion (54) including a leading point (66), a leading edge (58) and a trailing edge (62), said trailing edge (62) having an associated length (L), said ply stock (S) having spaced first and second lateral edges (18,22), the method characterized by the steps of:
- a. moving said knife assembly (14) toward said ply stock (S) to insert the leading point (66) of said knife blade (50) into said ply stock (S) at an insertion point (92) spaced a distance (D) from said first lateral edge (18) wherein distance (D) is less than or equal to length (L) in order to back-cut said ply stock (S) from said insertion point (92) to said first lateral edge (22) with said trailing edge (62) of said blade (50); and,
 - b. traversing said knife assembly (14) across said ply stock (S) toward said second lateral edge (22) in order to cut said ply stock (S) from said insertion point (92) to said second lateral edge (22) with said leading edge (58) of said blade (50) and provide severance of said ply stock (S) from said first lateral edge (18) to said second lateral edge (22).
2. The method of claim 1 wherein the cutting apparatus (10) further includes an anvil (26) having a slot (88) in a support surface (84), said slot (88) being generally aligned with the cut line, the method further characterized by the steps of:
- a. inserting said leading point (66) of said knife blade (50) into said slot (88) in said anvil (26) after inserting said leading point (66) into said ply stock (S); and,
 - b. maintaining said leading point (66) within said slot (88) while said knife assembly (14) traverses said ply stock (S).
3. The method of claim 1 wherein said cutting apparatus (10) further includes means for heating said knife blade (50), the method further characterized by the step of:
- heating said knife blade (50) before inserting said leading edge (58) into said ply stock (S).
4. The method of claim 3 further characterized by the step of:
- maintaining said heating means near said first lateral edge (18) of said ply stock (S) during the traversing of said knife assembly (14).
5. The method of claim 1 wherein said leading edge (58) of said knife blade (50) includes a concave cutting portion (120), the method further characterized by:
- engaging said concave cutting portion (120) of said leading edge (58) with said ply stock (S) after inserting said leading point (66) into said ply stock (S).

6. A knife assembly (14) for use in a cutting apparatus for cutting an associated ply stock (S) along a cut line of an anvil (26), said knife assembly (14) including a blade (50) having a cutting portion (54) including a leading point (66), a leading edge (58) and a trailing edge (62), said knife assembly (14) characterized by:

5 a. said leading edge (58) of said blade (50) including a concave portion (120) adjacent said leading point (66) for urging said ply stock (S) towards said anvil (26); and,

b. said trailing edge (62) of said blade (50) having a generally linear profile.

7. The knife assembly (14) of claim 6 wherein said knife assembly (14) is further characterized by:

10 said leading edge (58) of said blade (50) including a convex portion (122), said convex portion (122) meeting said concave portion (120) at an inflection point (124).

8. The knife assembly of claim 6 wherein said knife assembly (14) is further characterized by: said trailing edge (62) being inclined at an angle α from 20 to 40 degrees to the plane (S-S) of the associated ply stock at the cut line.

15 9. A cutting apparatus (10) for cutting an associated ply stock (S) along a cut line between first (18) and second (22) lateral edges, said apparatus (10) comprising a knife assembly (14), means for moving said knife assembly (14) toward and away from said ply stock (S), and means for traversing said knife assembly (14) between said first (18) and second (22) lateral edges of said ply stock (S), said knife assembly (14) including a blade (50) having a cutting portion (54) including a leading point (66), a leading edge (58) and a trailing edge (62), said trailing edge (62) having an associated length (L), said cutting apparatus (10) being characterized by:

25 said knife assembly (14) having a home position (48) wherein said leading point (66) of said blade (50) is directly above an insertion point (92) of said associated ply stock (S) and wherein a distance (D) between said first lateral edge (18) of said associated ply stock (S) and said insertion point (92) is less than or equal to said associated length (L) of said trailing edge (62).

10. The cutting apparatus (10) of claim 9 further characterized by:

an anvil (26) positioned below said knife assembly (14) and having a slot (88) in a support surface (84), said slot (88) being generally aligned with said cut line.

11. The cutting apparatus of claim 9 further characterized by:

30 means (70) for heating said knife blade (50).

12. A method of cutting a sheet of material (S) from a first lateral edge (18) to an opposite second lateral edge (22) with a knife blade (50) characterized by:

a. plunging said knife blade (50) through said sheet (S) at a first position (92) spaced from said first edge (18),

b. continuing to plunge said knife blade (50) through said sheet (S) to cut said sheet (S) from said first position (92) to said first edge (18); and,

c. moving said knife blade (50) from said first position (92) to said second edge (22) to complete the cutting of said sheet from said one edge (18) to said opposite edge (22).

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